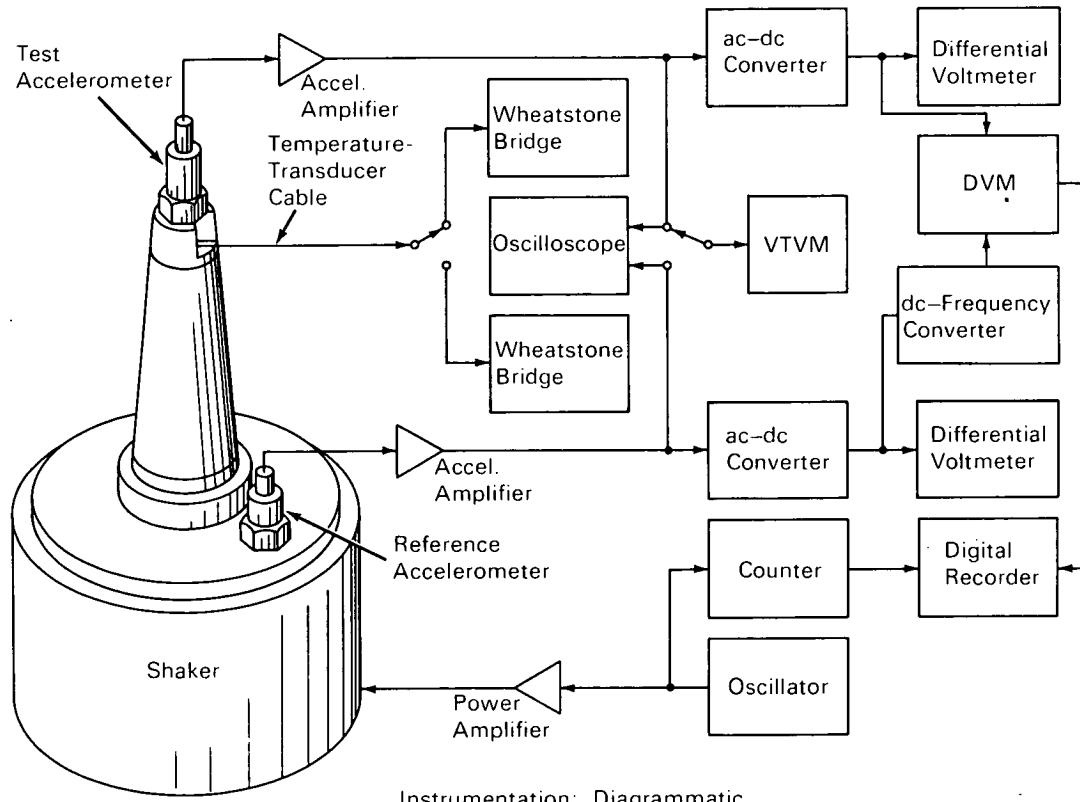


## NASA TECH BRIEF



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### Improved Calibration of Accelerometers at Temperatures Down to $-450^{\circ}\text{F}$



Instrumentation: Diagrammatic

By a new, more rapid, and less expensive technique piezoelectric accelerometers can be calibrated throughout the temperature range from ambient to  $-450^{\circ}\text{F}$ ; calibration was previously possible only between  $750^{\circ}$  and  $-300^{\circ}\text{F}$ .

Liquid helium is used as the coolant, instead of liquid nitrogen. The technique employs a cryogenic-temperature chamber, a vibration-measurement system, and a temperature-measurement system. A reference accelerometer is mounted on the vibrator's

head and maintained at ambient temperature. The test accelerometer is mounted in the cryostat's test cavity and subjected to vibration in a predetermined sequential mode of reduction in temperature. The differences in outputs of reference and test accelerometers reflect deviations caused by changes in temperature.

The technique may be applied to most components requiring vibratory or rotary motion, or electromagnetic actuation—such as valves, regulators, transducers, and switches.

(continued overleaf)

**Note:**

Requests for further information may be directed  
to:

Technology Utilization Officer  
Code A&TS-TU  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: TSP70-10173

**Patent status:**

No patent action is contemplated by NASA.

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